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EXAMINER

RAYYAN, SUSAN F

ART UNIT	PAPER NUMBER
2167	

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/762,823

Applicant(s)

SHAKIB ET AL.

Examiner

Susan F. Rayyan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 1/22/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-23, 25-29 is/are rejected.
- 7) ☒ Claim(s) 16, 24 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>04042004</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. Claims 1-30 are pending.

#### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on April 4, 2004 was filed before First Action. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

#### ***Claim Objections***

3. Claim 17 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 17 depends from itself.
4. Claim 25 is objected to because of the following informalities: "means for scanning the partions", should be "means for scanning the partitions". Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

**Claims 1, 4-5,7,9 –10, ,14-15,17-19, 22-23, 25,28-29 are rejected under 35 U.S.C. 102(a) as being anticipated by US Patent Publication Number 2005/0102270 issued to Knut Mage Risvik et al (“Risvik”).**

**As per independent claim 1** Risvik anticipates:

an index builder that stores locations of documents indexed by word in an index (paragraph 31, indexer) based on a present query-independent static rank that has been assigned to each document (paragraph 30, documents having a static relevance and ranking independent of query);

an index partitioner that orders and partitions the index into index partitions that each contain location information about a group of one or more documents having a continuous range of static ranks that is a subset of an overall range of static ranks (paragraph 31, produces a plurality of sub-indices and paragraph 30, static rank);

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an index scanner that progressively scans the index partitions starting with a partition containing those documents with the highest static rank to locate documents containing a search word (paragraph 35, inquiry first searched in tier 1 and then searched continues to indices of other tiers);

a scorer that calculates a score based on a present set of documents located thus far in the search and on the range of static ranks of a next partition to be scanned and wherein the index scanner scans the next partition to locate documents containing a search word if the calculated score is above a target score (paragraph 35-36, plurality of variables and search results).

**As per claim 4** same as claim arguments above and Risvik anticipates:

wherein the scorer comprises a dynamic rank computation module that computes a dynamic rank for the present set of located documents and wherein the score is based on the dynamic rank (paragraph 42, dynamic relevancy of the document).

**As per claim 5** same as claim arguments above and Risvik anticipates:

wherein the dynamic rank computation module computes the dynamic rank by totaling the number of located documents in the present set of located documents (paragraph 42, dynamic relevancy of the document).

**As per claim 7** same as claim arguments above and Risvik anticipates:

wherein the scorer calculates the score by adding a first weighted portion of the maximum static rank assigned to a document in the next partition to a second weighted portion of the dynamic rank (paragraph 4, lines 10-14).

**As per claim 9** same as claim arguments above and Risvik anticipates:

wherein the first and second weighted portions are determined based on system load(paragraph 4, lines 10-14).

**As per independent claim 10** Risvik anticipates:

assigning a present query-independent rank to each document to be searched(paragraph 30, documents having a static relevance and ranking independent of query);

ordering the documents to be searched in order of the assigned present query-independent rank and grouping the ordered documents to be searched into partitions by present query-independent rank and indexing documents in a partition by mapping a location for each document to words contained in the document to form an index (paragraph 31, produces a plurality of sub-indices and paragraph 30, static rank);

scanning the partitions in present query-independent rank order by iteratively searching a highest ranked unsearched partition for a search word found in the user query to add to a present set of located documents located thus far(paragraph 35, inquiry first searched in tier 1 and then searched continues to indices of other tiers);

calculating a score based on a present set of located documents and the present query-independent rank of documents indexed in a next highest ranking unsearched partition, comparing the calculated score to a target score, continuing to search the next highest ranking unsearched partition until the calculated score is higher than the target score and returning search results including the document locations in the present set of located documents when the calculated score is higher than a target score (paragraph 35-36, plurality of variables and search results).

**As per claim 14** same as claim arguments above and Risvik anticipates:

comprising calculating the score by computing a dynamic rank for the present set of located documents(paragraph 42, dynamic relevancy of the document).

**As per claim 15** same as claim arguments above and Risvik anticipates:

comprising computing the dynamic rank by totaling a number of located documents in the present set of located documents(paragraph 42, dynamic relevancy of the document).

**As per claim 17** same as claim arguments above and Risvik anticipates:  
comprising determining the first weighted portion based on a search engine load level(paragraph 4, lines 10-14).

**Claim 18** is rejected based on the same rationale as claim 10.

**As per independent claim 19** Risvik anticipates:

assigning a static rank to documents(paragraph 30, documents having a static relevance and ranking independent of query);

indexing the documents by mapping document locations to words contained in the document to construct an index(paragraph 31, produces a plurality of sub-indices and paragraph 30, static rank);

ordering and partitioning the index by document based on the static rank assigned to the document (paragraph 31, produces a plurality of sub-indices and paragraph 30, static rank);

iteratively searching, in static rank order, a highest ranking unsearched partition to return locations for documents containing search words in the query(paragraph 35, inquiry first searched in tier 1 and then searched continues to indices of other tiers);



calculating a score based on a relevance of documents returned and the static rank assigned to a next partition to be searched, and continuing to search the next partition until the calculated score is higher than a target score and returning document locations as a query result when the calculated score exceeds the target score (paragraph 35-36, plurality of variables and search results).

**As per claim 22** same as claim arguments above and Risvik anticipates:

wherein the score is calculated by calculating a dynamic rank based on the relevance of documents returned thus far in the search (paragraph 35-36).

**As per claim 23** same as claim arguments above and Risvik anticipates:

wherein the dynamic rank is calculated based on a number of documents returned thus far in the search (paragraph 42, dynamic relevancy of the document).

**As per independent claim 25** Risvik anticipates:

means for assigning a present query-independent rank to a document (paragraph 30);

means for ordering the documents to be searched in order of the assigned

present query-independent rank and grouping the ordered documents to be searched

into partitions by present query-independent rank and means for indexing documents in

a partition by mapping a location for each document to words contained in the

document to form an index (paragraph 30, documents having a static relevance and

ranking independent of query, paragraph 31, partitioning);

means for scanning the partitions in present query-independent rank order by iteratively searching a highest ranked searched partition for a search word found in the user query to add to a present set of located documents located thus far(paragraph 35, inquiry first searched in tier 1 and then searched continues to indices of other tiers);

calculating a score based on a present set of located documents and the present query-independent rank of documents indexed in a next highest ranking unsearched partition, comparing the calculated score to a target score, continuing to search the next highest ranking unsearched partition until the calculated score is higher than the target score, means for retuning search results including the document locations in the present set of located documents when the calculated score is higher than a target score(paragraph 35-36, plurality of variables and search results).

**As per claim 28** same as claim arguments above and Risvik anticipates:

comprising means for calculating the score by computing a dynamic rank for the present set of located documents(paragraph 42, dynamic relevancy of the document).

**As per claim 29** same as claim arguments above and Risvik anticipates:

wherein the means for computing the dynamic rank computes the dynamic rank by totaling a number of located documents in the present set of located documents(paragraph 42).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 2-3,6,11-12,20-21,26,27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Publication Number 2005/0102270 issued to Knut Mage Risvik et al ("Risvik" in view of US Patent Publication Number 2003/0158866 issued to James P. Goodwin et al ("Goodwin").**

**As per claim 2** same as claim arguments above and Risvik does not explicitly teach comprising a document ranker that assigns the static rank to a document and wherein the document ranker includes a link analyzer that detects a number of links that reference the document and wherein the static rank is a function of the number of links that reference the document. Goodwin does teach this limitation (paragraph 109, lines

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4-14 ,document scoring based on parameters such as links to and from a document) to maintain current information. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with a document ranker that assigns the static rank to a document and wherein the document ranker includes a link analyzer that detects a number of links that reference the document and wherein the static rank is a function of the number of links that reference the document to maintain current information (paragraph 43, lines 6-7).

**As per claim 3** same as claim arguments above and Risvik does not explicitly teach wherein the document ranker includes a document usage monitor that detects a number of times the document has been accessed in response to a query and wherein the static rank is a function of the number of times the document has been accessed. Goodwin does teach this limitation (paragraph 109,lines 4-14, document scoring based on parameters such as number of times a document has e been opened) to maintain current information. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with wherein the document ranker includes a document usage monitor that detects a number of times the document has been accessed in response to a query and wherein the static rank is a function of the number of times the document has been accessed to maintain current information (paragraph 43, lines 6-7).

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**As per claim 6** same as claim arguments above and Risvik does not explicitly teach wherein the dynamic rank computation module computes the dynamic rank by determining a quality of match value for documents in the present set of located documents. . Goodwin does teach this limitation (paragraph 109, lines 14-27) to maintain current information. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with wherein the dynamic rank computation module computes the dynamic rank by determining a quality of match value for documents in the present set of located documents to maintain current information(paragraph 43, lines 6-7).

**As per claim 11** same as claim arguments above and Risvik does not explicitly teach detecting a number of links that reference a document and assigning a static rank to the document based on the number of links. Goodwin does teach this limitation (paragraph 109, lines 4-14 ,document scoring based on parameters such as links to and from a document) to maintain current information. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with detecting a number of links that reference a document and assigning a static rank to the document based on the number of links to maintain current information (paragraph 43, lines 6-7).

**As per claim 12** same as claim arguments above and Risvik does not explicitly teach comprising monitoring document usage to determine a number of times a document has been retrieved by previous queries and assigning the present query-independent

rank based on the number of time a document has been retrieved. Goodwin does teach this limitation (paragraph 109, lines 4-14, document scoring based on parameters such as number of times a document has been opened) to maintain current information. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with monitoring document usage to determine a number of times a document has been retrieved by previous queries and assigning the present query-independent rank based on the number of time a document has been retrieved to maintain current information (paragraph 43, lines 6-7).

**As per claim 20** same as claim arguments above and Risvik does not explicitly teach wherein the static rank is assigned to a document based on a number of documents that reference the document. Goodwin does teach this limitation (paragraph 109, lines 4-14, document scoring based on parameters such as links to and from a document) to maintain current information. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with wherein the static rank is assigned to a document based on a number of documents that reference the document to maintain current information (paragraph 43, lines 6-7).

**As per claim 21** same as claim arguments above and Risvik does not explicitly teach wherein the static rank is assigned based on a number of times the document has been returned by previous queries.. Goodwin does teach this limitation (paragraph 109, lines 4-14, document scoring based on parameters to maintain current information. It would

have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with wherein the static rank is assigned based on a number of times the document has been returned by previous queries to maintain current information (paragraph 43, lines 6-7).

**As per claim 26** same as claim arguments above and Risvik does not explicitly teach comprising means for detecting a number of links that reference a document and wherein the means for assigning a present query-independent rank assigns the rank to the document based on the number of links. Goodwin does teach this limitation (paragraph 109, lines 4-14 ,document scoring based on parameters such as links to and from a document) to maintain current information. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with means for detecting a number of links that reference a document and wherein the means for assigning a present query-independent rank assigns the rank to the document based on the number of links to maintain current information (paragraph 43, lines 6-7).

**As per claim 27** same as claim arguments above and Risvik does not explicitly teach comprising means for monitoring document usage to determine a number of times a document has been retrieved by previous queries and wherein the means for assigning the present query-independent rank assigns the rank based on the number of time a document has been retrieved. Goodwin does teach this limitation (paragraph 109,lines 4-14, document scoring based on parameters such as number of times a document has

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been opened) to maintain current information. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with means for monitoring document usage to determine a number of times a document has been retrieved by previous queries and wherein the means for assigning the present query-independent rank assigns the rank based on the number of time a document has been retrieved to maintain current information (paragraph 43, lines 6-7).

**Claims 8,13 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Publication Number 2005/0102270 issued to Knut Mage Risvik et al ("Risvik" in view of US Patent Publication Number 2004/0143707 issued to Sompong P. Olarig et al ("Olarig").**

**As per claim 8** same as claim arguments above and Risvik does not explicitly teach wherein the index partitioner partitions the index into such that the size of a partition is smaller than or equal to a cache size. Olarig does teach this limitation (paragraph 21, sizes of cache partitions) to provide cache optimization. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with wherein the index partitioner partitions the index into such that the size of a partition is smaller than or equal to a cache size to provide cache optimization (paragraph 21, line 1-4).



**As per claim 13** same as claim arguments above and Risvik does not explicitly teach grouping the ordered documents into partitions having a size smaller than a size of a cache designated for storing portions of the index. Olarig does teach this limitation (paragraph 21, sizes of cache partitions) to provide cache optimization. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Risvik with grouping the ordered documents into partitions having a size smaller than a size of a cache designated for storing portions of the index to provide cache optimization (paragraph 21, line 1-4).

***Allowable Subject Matter***

7. Claims 16,24,30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### Contact Information


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Rayyan whose telephone number is (571) 272-1675. The examiner can normally be reached M-F: 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Susan Rayyan

September 27, 2006

  
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